Stormwater Management

▶ Agency Mission

This agency's mission is to develop and maintain comprehensive watershed, stormwater management, and walkway programs to protect property, to promote health and safety, to enhance the quality of life, and to preserve and improve the environment for the benefit of the public. Stormwater Management plans, designs, constructs, operates, maintains, and inspects the stormwater system and walkways while performing environmental assessments through coordinated maintenance programs in compliance with sound environmental policies and government regulations, utilizing state-of-the-art and innovative techniques, customer feedback, and program review. As a dedicated and committed workforce, we are responsive and sensitive to the needs of the residents, customers, and partners.

▶ Trends/Issues

The Stormwater Management business area consists of the Maintenance and Stormwater Management Division and the Stormwater Planning Division. These two agencies develop, promote, and implement strategies that protect the County's stormwater infrastructure and preserve and improve the natural ecosystem. This business area was established in conjunction with a Department of Public Works and Environmental Services (DPWES) reorganization in FY 2000 in order to place new emphasis on environmental stewardship within the stormwater management areas. This reorganization consolidated key functions such as development and implementation of master plan efforts, inventory identification and assessment, stormwater regulation, capital construction, and performance of critical maintenance activities.

The Maintenance and Stormwater Management Division provides those County Activities, Programs, and Services (CAPS) identified in the following documentation as Maintenance Operations. This CAPS provides for the maintenance of the County's vast inventory of stormwater facilities, walkways, roadways, commercial revitalization and park and ride facilities, public street name signs, and other related infrastructure. Additionally, this CAPS provides snow removal and other emergency support services for designated facilities and agencies Countywide.

The Stormwater Planning Division provides both the Stormwater Planning and Monitoring CAPS and the Stormwater Capital Projects Design CAPS. The Stormwater Planning and Monitoring CAPS maintains the County's federally mandated stormwater discharge permit [National Pollutant Discharge Elimination System (NPDES) permit]. This includes state mandated dam operation, dam maintenance certificates, watershed management, floodplain management programs, and Pro Rata Share programs. The agency also monitors and assesses the stream health through the Stream Protection Strategy program and the Master Drainage Plan; this includes the tracking of new and pending legislation while implementing public education and awareness efforts. The Stormwater Capital Projects Design CAPS implements the capital projects identified in the County's Master Drainage Plan. This CAPS participates in the scope development phase of drainage projects, prepares in-house designs, administers consultant contracts, conducts citizen meetings, obtains all local, state, and federal permits, and monitors projects from initiation through completion of construction.

Key Accomplishments

Key accomplishments of Stormwater Management over the past two years include the following:

- The recent Department of Public Works and Environmental Services reorganization resulted in the creation of the Stormwater Planning Division. This division was created to consolidate the management of stormwater issues in the County.

- In January 2001, the Stream Protection Strategy (SPS) Baseline Study was completed. As requested by the Board of Supervisors, a complete baseline assessment of Fairfax County streams was conducted. In addition to the field and lab work, the SPS team has also participated in the following:

  - Community and public outreach/education efforts including the Fairfax County Fair and Fall for Fairfax to educate and encourage environmental stewardship. SPS staff also trained volunteers in partnership with the Northern Virginia Soil and Water Conservation District's (NVSWCD) Volunteer Stream Monitoring Program.

  - Inclusion of the SPS Baseline Study into the County's website

  - Applications for EPA grants to monitor wetlands and to develop a citizen monitoring database

- New business practices have been implemented to significantly reduce response time to citizen requests for maintenance services. Over the past two years, initial response to citizen requests within one business day of receipt has increased from 67 percent to 95 percent. Final complaint close-out within five business days has increased from 81 percent to 95 percent. Feedback via Customer Service Surveys is also solicited and analyzed to continuously improve service.

- Partnerships with the Northern Virginia Soil and Water Conservation District and Virginia Department of Forestry have been established to identify, scope, and implement storm drainage improvement projects. These projects include innovative techniques that directly support the desired outcomes of environmental protection and enhancement of community aesthetics.

- An initial five-year proactive program to inspect, evaluate, and correct deficiencies in the County's storm sewer network was completed. Work was completed 1½ years ahead of schedule.

- New citizen notification procedures were established and implemented to provide advance notice to citizens prior to performing work in the vicinity of their property.

- Design was completed for 33 storm drainage improvement projects that included 6 severe yard flooding projects, 12 stream bank stabilization projects, 7 dam embankment repairs, and 4 water quality improvement projects that were forwarded for construction. In addition, four house flooding projects were brought to resolution with the homeowners. The total project estimate for these improvements was $11,210,000.

- Outreach efforts of note included partnership with local jurisdictions to review stormwater management policies, joint field visits to investigate implementation possibilities, and presentations about ongoing stormwater management activities, including:

- Participation in the April 2000 Strategies for Success Seminar sponsored by NVSWCD and other partners to assess ways to improve stormwater management in Fairfax County.

- Presentations to the Virginia Lakes Association.

- Participation in the Fairfax County Fair and Fall for Fairfax to educate and encourage environmental stewardship.

- Presentation of various Engineers and Surveyors Institute (ESI) continuing education classes related to innovative stormwater management practices.

- Creation and printing of numerous publications to assist Home Owners Associations (HOAs) and private property owners with effective stormwater maintenance techniques.

- Virginia Environment 2000 and 2001 – A state-sponsored conference concerning environmental initiatives across the state at which the results of the SPS study were presented.

- Council of Governments Regional Monitoring Meeting – Presented an SPS update to inform other area environmental groups about the program.

- Benthic TMDL Workshop - SPS members gave a presentation about impairments to benthic communities in an urban environment.

- County Parks Steering Committee – SPS members presented to the committee the status of SPS.

- Accomplishments relating to the National Pollutant Discharge Elimination System (NPDES) Permit #VA0088587:

  - Performed wet outfall monitoring on six sites twice a year (October – March and April – September) by the Systems Engineering and Monitoring Division. Chemical analysis performed for a multitude of pollutants including metals and hydrocarbons.

  - Performed dry outfall monitoring of over 100 sites under the condition of no rain in a 72-hour period.

  - Responded to citizens' calls concerning observed water problems in streams (soap suds, black water, etc.) tested water, photographed if appropriate, and repeated visits and tests where necessary.

  - Compiled VPDES annual report to comply with the permit requirements with information and data collected in-house and from all other Fairfax County agencies and private entities involved with environmental-related work.

Key Challenges

Regulatory requirements and renewed emphasis on protecting the environment will, by far, have the most impact on Stormwater Management in the future.

A major component of the regulatory stormwater management program is meeting the requirements of the County's Virginia Pollutant Discharge Elimination System (VPDES) Municipal Separate Storm System (MS4) permit, which was granted in 1997 for a period of five years. The VPDES permit is now due for another five-year renewal, and expanded permit requirements are anticipated beginning in January 2002. The estimated cost of the permit renewal is $3,318,000.

The stormwater management program must address the results of the Stream Protection Strategy (SPS) Baseline Study that indicated over 70 percent of County streams are of very poor to fair biological quality.

There are a number of state and federal agreements or mandates that have implications for Fairfax County's MS4 permit renewal as noted above. These agreements/mandates are as follows:

Total Maximum Daily Load (TMDL) Program

The Total Maximum Daily Load (TMDL) program of the Environmental Protection Agency provides a national framework for identifying impaired waters, determining pollution sources, and developing restoration strategies. Authority for the TMDL program is vested in Section 303(d) of the Clean Water Act, which requires each state to identify surface waters that do not meet applicable water quality standards. Impaired water bodies are placed on the 303(d) list for a specific pollutant and may be listed multiple times for different pollutants. The development of a TMDL for an impaired water body includes the identification of pollutant sources, determination of allowable pollutant amounts and required load reductions to meet water quality standards, wasteload allocation among point and nonpoint sources, and a plan for implementing measures to meet water quality standards. A total of eight stream segments in the County, totaling over 40 miles, are already listed on the 303(d) list. This figure is expected to grow in the future as more streams are assessed. If the results of the SPS study indicate that the majority of segments have violations of fecal coliform or general (benthic) impairment standards noted as the "cause" or reason for listing, then further study and identification of the source of the violations will be required.

NPDES Stormwater Phase II Regulations

NPDES Phase II regulations are newer regulations that cover jurisdictions smaller than Fairfax County. However, Fairfax County's Phase I renewal is expected to be required to meet and exceed Phase II requirements of those smaller communities. The most significant component of the Phase II requirements that can be expected to affect Fairfax County is increased emphasis on public education and participation, construction site run-off control, illicit discharge detection and elimination, and enhanced maintenance of stormwater infrastructure.

Chesapeake Bay 2000 Agreement and Virginia Tributary Strategies

Chesapeake Bay 2000 renews the original 1987 agreement to restore the Bay. The new agreement sets wide-ranging goals for water quality improvement, habitat protection and restoration, sound land use, and community engagement. Water quality improvement is the most critical element in the overall restoration and protection of the Chesapeake Bay and its tributaries. The overall goal for water quality improvements is to remove the Bay and its tidal tributaries from the national TMDL list of impaired waters by correcting all nutrient and sediment-related problems. This goal is regarded as the most comprehensive in the history of the Bay's restoration.

While the Chesapeake 2000 agreement is voluntary, certain actions and outcomes are expected before 2010 to avoid the declaration of a baywide TMDL which could impose additional mandatory regulatory requirements on the County as well as other localities within the Bay watershed. Under voluntary accord with Bay program partners, the state has developed an interim nutrient cap strategy for the Potomac watershed as part of the Virginia Tributary Strategies. The County has an obligation to continue to support the goals of the Potomac Tributary Strategy, offer leadership in the area of stormwater management, and develop comprehensive watershed master plans (see Fund 308 CAP) over the next five years.

Government Accounting Standards Board – Statement 34 (GASB 34)

This is a mandated accounting requirement that took effect on July 1, 2001, requiring state and local governments to report the current value of all capital assets. This includes the County's public storm sewer and stormwater management inventories among other assets. The valuation of each specific asset (i.e., each mile of pipe, each stormwater management pond, etc.) will be based on historical cost or donated value data (adjusted to current dollars) and estimated service-life projections. This information will improve the accountability of the County to its citizens with respect to asset management. Currently, the information required to meet the new accounting standards is substantially incomplete.

Virginia Department of Conservation and Recreation Definition Changes – Regulated Dams

The definition of impounding structures subject to the Dam Safety Act has been changed by DCR, effective July 2002, to include dams that were previously excluded. These include small dams that store large volumes, and large dams that store enough water to pose a risk. This will result in state regulation and oversight of approximately 30 additional stormwater management facilities in the County that were previously excluded. Elevated service levels pertaining to operation, maintenance, safety, inspection, and reporting will be required for these facilities.

Client Population Issues

A review of Fairfax County trends between 1986 and 1999 reveal the following:

- Since January 1986, the population of Fairfax County has grown by more than a quarter of a million people, increasing from 683,000 to 946,400 as of January 1999. The population of Fairfax County is expected to exceed 1 million people within the next year.
- Between 1986 and 1999, the total amount of nonresidential gross floor area increased 97 percent. As of January 1999, there was an estimated 81.0 million square feet of office space in Fairfax County compared to 41.1 million square feet in 1986.
- Employment patterns have changed dramatically in Fairfax County. Since 1986, Fairfax County added 192,900 nonagricultural jobs for a total of 487,100 jobs in 1999.

- Between 1986 and 1999, Fairfax County added over 94,000 housing units to its inventory. As of 1999, Fairfax County had 352,741 housing units. Single-family detached units accounted for half (50.3 percent) of all units whereas in 1986, single-family detached accounted for 55.8 percent of the housing stock.

- Fairfax County is much more diverse than in 1986. At that time, 11.1 percent of the population was comprised of racial and ethnic minorities compared to 33.3 percent of the population in 1998. Nearly a third of the County's residents speak a language other than English at home in 1998 compared to 18.8 percent in 1990 and 10.7 percent in 1980.

Similar client trends were experienced in 2000, and are expected to continue well into the future. These trends significantly affect the Stormwater Management Agency. The growth associated with the increases in population has led to additional demand on County's infrastructure (storm drainage, walkways, park and ride facilities, etc.). At the same time, the increased demand on the transportation network, particularly during peak morning/afternoon "rush hour", increases the percentage of time maintenance crews spend driving within the County's 399 square mile boundary. In addition, adaptation of the existing workforce, training, hiring practices, and available technology have been and will continue to be a focus to ensure effective communication with County constituents.

Impact of Inventory Increases on Stormwater Management Programs

As noted above, increased resource allocations are required to address upcoming mandates and to support the County's environmental protection initiatives. At the same time, increased infrastructure inventories caused by ongoing land development activities continue to erode available resources. Since the mid 1980s, Fairfax County has added approximately 300,000 residents, 45 million square feet of office space, and 110,000 housing units. During this urbanization process, Stormwater Management became responsible for additional stormwater facilities, walkways, roadways, commercial revitalization and park and ride facilities, public street name signs, and other related infrastructure inventory. In addition, this massive population growth trend resulted in the construction of facilities such as fire stations and libraries that require increased services from Maintenance Operations staff, including snow removal and other emergency support.

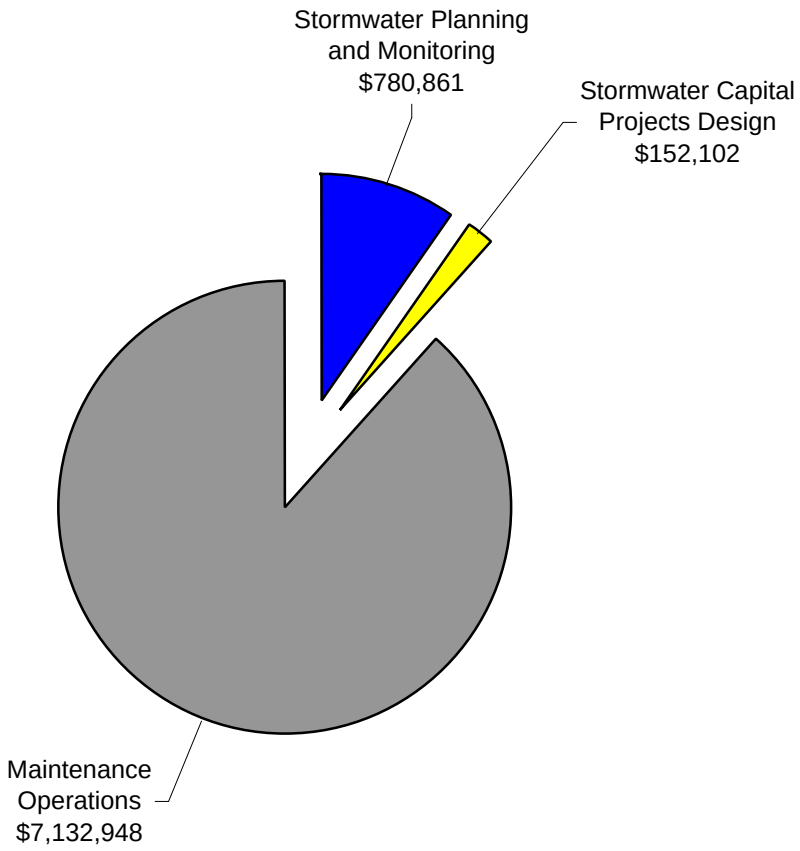
Additional management efforts were implemented to address these increased maintenance and service demands, such as: reduced maintenance crew size, increased equipment versatility, established inspection programs, and the establishment of specialized maintenance crews. In recent years, the budget has not been able to support this increase in inventory with commensurate increases in resources (i.e., staff, contract funding, equipment). Although efforts in increased production are being made with existing staff and resources, the service levels in the Stormwater Management Programs are reduced to those services that address basic operations and safety items.

The baseline budget does not take into account increases in inventory (staff, contract funding, equipment, etc.), resulting in service level reductions throughout programs over time as new inventory and responsibilities are added. The current funding level has resulted in deferred maintenance and some deterioration of facilities.

▶ Summary of All Agency CAPS

CAPS Number	CAPS Title	CAPS Net Cost	CAPS Number of Positions/SYE
29-01	Stormwater Planning and Monitoring	$780,861	10/10
29-02	Stormwater Capital Projects Design	$152,102	11/11
29-03	Maintenance Operations	$7,113,751	101/101
TOTAL Agency		**$8,046,714**	**122/122**

Stormwater Management



Total FY 2002 Adopted Budget Expenditures = $8,065,911
Total FY 2002 Adopted Budget Net Cost = $8,046,714